

University of Puerto Rico
Río Piedras Campus
College of Natural Sciences
Nutrition and Dietetics Program

NUTR 4198 – Research Methods in Nutrition

Credits: 2

Professor: Elsa Pinto López, PhD, RD, LND

1st semester 2018-2019

Course hours and place:

Tuesdays and Thursdays 10:00 – 11:20 a.m.

Salón 217 Edificio Luis Palés Matos (LPM)

Course description: This course includes the presentation and application of knowledge and skills in the process of conducting research in nutrition. It focuses on the development of critical analysis skills in the areas of study design, statistical analysis, organization and presentation of data and the presentation of the final report in the context of research within the field of food and nutrition.

Descripción del curso: Este curso incluye la presentación y la aplicación de los conocimientos y las destrezas básicas en el proceso de investigación en el campo de la nutrición. Se enfoca en el desarrollo de las destrezas de análisis crítico en las áreas de diseño de estudios, la aplicación de métodos estadísticos, la organización y la interpretación de datos, y la presentación del informe final en el contexto de las investigaciones en el área de los alimentos y la nutrición

Course Prerequisites:

MATE 3026, NUTR 4041

Office: Edificio Janer # 108

Office hours: Tuesdays 9-10:00 a.m., Wednesdays 9-12:00 p.m.

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Mission of the Didactic Program in Dietetics:

The mission of the Didactic Program in Dietetics is to provide the academic preparation necessary to form Nutritionists-Dietitians qualified to offer educational, administrative and clinical services in medical nutritional therapy and in the management of food service systems. The Program capacitates professionals to work in different scenarios within an ever-changing and culturally diverse society. The integration of knowledge and skills specialized in foods and nutrition will permit the graduates to promote the general welfare of the individual, the family and the community, helping them to obtain optimal nutrition in health or in sickness throughout their life cycle.

Reasonable Accommodation:

The University of Puerto Rico complies with all state and federal laws and regulations related to discrimination, including “The American Disabilities Act” (ADA law) and Law #51 from the Puerto Rico Commonwealth (*Estado Libre Asociado de Puerto Rico*). Every student has the right to request and receive reasonable accommodation and Vocational Rehabilitation Services (VRS). Those students with special needs that require some type of particular assistance or accommodation shall explicitly communicate it directly to the professor. Students who are receiving VRS services shall communicate it to the professor at the beginning of the semester so that appropriate planning and the necessary equipment may be requested according to the Disabilities Persons Affairs Office (*Oficina de Asuntos para las Personas con Impedimentos (OAPI)*) from the Students’ Deanship office. Any other student requiring assistance or special accommodation shall also communicate directly with the professor. Reasonable accommodations requests or services DO NOT exempt the student from complying and fulfilling academic and course related requirements and responsibilities.

Academic honesty

The University of Puerto Rico promotes the highest standards of academic and scientific integrity. Article 6.2 of the UPR Students General Bylaws (Board of Trustees Certification 13, 2009-2010) states that academic dishonesty includes, but is not limited to: fraudulent actions; obtaining grades or academic degrees by false or fraudulent simulations; copying the whole or part of the academic work of another person; plagiarizing totally or partially the work of another person; copying all or part of another person answers to the questions of an oral or written exam by taking or getting someone else to take the exam on his/her behalf; as well as enabling and facilitating another person to perform the aforementioned behavior. Any of these behaviors will be subject to disciplinary action in accordance with the disciplinary procedure laid down in the UPR Students General Bylaws.

Your written assignments should be your intellectual work. Plagiarism, or presenting the words or ideas of another person as your own, is a form of fraud and will not be tolerated. Papers containing plagiarism will automatically receive the grade of “F”. Other examples of plagiarism include cutting and pasting from the web – when you are specifically asked to state something in your own words. This is inappropriate even if you cite where you got the information. When you are requested to synthesize the information from a literature source – it must be in your own words and not a direct quote. The objective is to demonstrate understanding of the information gleaned from the literature sufficiently to present the information in your own words.

Please refer to *Artículo 6.2 Reglamento General de Estudiantes de la UPR* (Certificación Núm. 13, 2009-2010, de la Junta de Síndicos) for Institutional Policy on Academic Honesty.

Knowledge requirements for Registered Dietitians covered in this course

This course will cover the following knowledge requirements set forth by the Accreditation Council for Education in Nutrition and Dietetics in the 2017 Accreditation Standards for Didactic Programs in Nutrition and Dietetics.

- 1.1 Demonstrate how to locate, interpret, evaluate and use professional literature to make ethical, evidence-based practice decisions.
- 1.2 Use current information technologies to locate and apply evidence-based guidelines and protocols.
- 1.3 Apply critical thinking skills.
- 2.1 Demonstrate effective and professional oral and written communication and documentation.

2.2 Describe the governance of nutrition and dietetics practice, such as the Scope of Nutrition and Dietetics Practice and the Code of Ethics for the Profession of Nutrition and Dietetics; and describe interprofessional relationships in various practice settings.

3.5 Describe basic concepts of nutritional genomics.

4.6 Analyze data for assessment and evaluate data to be used in decision-making for continuous quality improvement.

Course Objectives:

Upon completion of the course NUTR 4198, each student should have acquired the knowledge to:

1. Analyze and discuss the components of the investigative process such as development of the research question, review of the published scientific literature, formulation of the objectives and/or hypothesis, selection of the proper study design including the population to be sampled, collection and analysis of data (methods for), and presentation of the final report.
2. Use scientific literature databases to search for research studies and reports related to the dietetics profession.
3. Compare and contrast various study designs and statistical analysis for qualitative and quantitative study designs used in nutrition research.
4. Value the importance of ethical conduct in all areas of research, specifically in the methods and study design for studies in nutrition with human or animal subjects.
5. Develop a research project focused in food and nutrition.
6. Demonstrate basic skills of statistical analysis for qualitative and quantitative data using computerized statistical software.
7. Apply basic skills to interpret statistical analysis from studies within the field of food and nutrition.
8. Conduct a reflective exercise of their performance in the course.
9. Contribute effectively in the inclusion of disabled students in the activities of the course.

Course Outline and distribution of time:

Topic	Time (hours)	
	Conference: In-class or video	Workshop: In-class or video
I. Overview of Nutrition and Dietetics Research A. History of nutrition and dietetics research B. Paradigms, principles and terminology C. Problems, research questions, objectives and hypothesis	4.0	2.0
II. Context of Nutrition Research A. Knowledge base 1. Searching the scientific literature using databases 2. Review of the literature B. Conceptual and theoretical context C. Ethical context	5.0	1.0
III. Study Designs in Nutrition Research A. Selection of adequate study design B. Qualitative designs C. Quantitative designs	4.5	4.5

Topic	Time (hours)	
	Conference: In-class or video	Workshop: In-class or video
D. Nutritional Epidemiology F. Sampling designs G. Study designs by field of study within nutrition <ol style="list-style-type: none"> 1. Food services administration 2. Food sensory evaluation 3. Appetite Assessment 4. Lifestyle and behavior modification 5. Nutrient intake and human genetics 6. Cost-effectiveness of interventions [Exam]		
IV. Measurement and data collection <ol style="list-style-type: none"> A. Data collection B. Self-Report C. Observational methods D. Biophysiological methods E. Integrity and quality of data 	6.0	3.0
V. Data analysis <ol style="list-style-type: none"> A. Use of national databases for nutrition research <ol style="list-style-type: none"> 1. NHANES 2. BRFSS B. Descriptive statistics <ol style="list-style-type: none"> 1. Level of measurement 2. Frequency distributions 3. Central Tendency 4. Variability 5. Correlations C. Inferential Statistics <ol style="list-style-type: none"> 1. Hypothesis testing 2. Level of significance 4. Probabilities 5. Parametric statistics 6. Non-parametric statistics [Exam]	1.0	5.0
VI. Communication of research findings <ol style="list-style-type: none"> A. Write-up of research findings B. Data presentation C. Development of a research proposal D. Applications of nutrition research – evidence based practice 	2.0	7.0
<i>Total contact hours (45.0)</i>	22.5	22.5

Course policies and expectations:

- Your participation in class is vital for successful learning, particularly in the research setting. Your participation includes your attendance on time and actively engaged in the class discussions. If you need to leave the class early please let professor know ahead of time. You must be responsible for the work done during the remainder of the class. Days of student presentations are no exceptions and are even more important as discussions of these presentations will demonstrate your engagement and comprehension of research. Unexcused absences or arriving late to class more than twice will automatically lower your course grade.
- Cell phones must be in silent mode and any calls that you must receive or make are to be conducted outside the classroom.
- Texting is a distraction to both professor and students and should be done outside the classroom.
- Reading comprehension quizzes are done within the first 20 minutes of class. You are given the opportunity to eliminate 1 quiz grade during semester.
- All course work must use APA style of referencing when applicable. All instructions are available in the online platform (Moodle via online.uprrp.edu) including rubric and evaluation criteria.
- Assignments handed in after the established deadline will have a 5% deduction of the total grade for each day after the due date. Assignments over a week late will not be received.
- Professor will respond to email communications within 48 hours. If you wish to speak with professor or schedule an appointment you may email your request.

Required Text:

Monsen, E., Van Horn, L. (2007). *Research: Successful Approaches*. (3rd edition). American Dietetic Association. ISBN: 0880914157

Other suggested texts:

Salkind, N.J. (2017). *Statistics for people who think they hate statistics*. 5th Ed. California: Sage Publications. ISBN: 9781506333830

Trochim, W.M., Donnelly, J., Arora, K. (2015). *Research Methods: the Essential Knowledge Base*. 2nd edition. Cengage Learning. ISBN: 1133954774

Note: It is highly recommended that you acquire a medical dictionary to help you understand unfamiliar terms in peer-reviewed journal articles.

Minimal resources required:

Minimal Resources Required for each Instructional Technique (Y = Yes, N = No)	In-class	Hybrid	Dist. Ed.
Basic to intermediate skills in computer use	Y	Y	Y
Access to a computer with Internet connection	Y	Y	Y
Activated institutional e-mail (upr.edu) account	Y	Y	Y
Microsoft Office or compatible equivalent software (Word, Excel, Powerpoint in particular)	Y	Y	Y
Access to the distance education platform	Y	Y	Y
Speakers, microphone for computer	N	Y	Y
Web-cam	N	N	Y

Skype or equivalent audio-video communication software	N	N	Y
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Student Evaluation:

Activity	% Final grade
Class Participation (attendance and class readiness)	15%
Assignments	15%
Quizzes (10 pts. each)	15%
Exams (2)	25%
Course project – research proposal	30%
TOTAL	100%

Breakdown of Grade:

90 - 100	A	60 - 69	D
80 - 89	B	< 59	F
70 - 79	C		

It is a requirement for graduation that all Nutrition and Dietetics students pass all science core and NUTR specialty courses with a “C” or better.

Course project - Development of a Research Proposal:

Each student will develop a research proposal throughout the course as we study the individual components of research and statistics. For example, when we study the statement of the research question, you establish your research question and turn it in for evaluation. As we study the next component, such as the literature review, the process will continue. Each student should maintain a personal copy of document, because the final reports will be turned in as a growth all revised documents. Final project must include adequate citations throughout the text and references in APA style. More information on the format of the final project will be provided during the semester.

Format for projects and assignments

All projects or assignments to be hand in to professor must include the following information:

- Name
- Student number
- Date
- Professor
- Course ID
- Title of assignment

Teaching methods

Teaching methods include conferences using Power Point slides to interpret tables and graphs as well as data analysis concepts. Readings of journal articles, class discussions, cooperative learning, field work and data analysis exercises.

Alternate teaching methods:

Certification number 112 (2014-2015) from the *Junta de Gobierno*, defines a face-to face course as one in which 75% or more of its contact hours require de physical presence of the student and professor in the classroom. This means that 25% of the contact hours may be offered without the physical presence of the student and professor in the classroom. When necessary, this course may use up to 11.25 hours (25%) of instruction with

alternate learning methods such as video-conference, instructional modules, discussion forums, online evaluations, webinars among others.

Sending emails to professor

All emails to professor should contain the following information in the SUBJECT LINE: Course ID (NUTR 4198), your name and last name. The email should have a salutation line and should have your full name and student number at the end of the email.

“Extra Credit” (optional):

You will have opportunity to earn extra credit during the semester by completing one of the following:

1. Identify five words or concepts you are not familiar with from the Statistical Analysis section and or the Methods section of a peer-reviewed journal article. Search for the definition of the word in your textbooks or other statistical references that will help you describe and explain each word in detail. Prepare a presentation to hand in that includes the following: complete reference of article in APA format, brief description of study, definition and explanation of each word and references used.
2. Identify a primary, peer-review research article and prepare a 5 minute presentation summarizing the research conducted, methods, results and conclusions. The article must be approved by professor before presenting.

One article per student for extra credit is allowed during the semester. Extra credit will provide you with up to 5 extra points that are added to your lowest grade. Extra credit can be done at any time during the semester until the last day of classes with the exception of exam or workshop days.

Selected General References:

Al-Mauzouki S, Evans S, Marshall T, Roberts L. (2005). Are these data real? Statistical methods for the detection of data fabrication in clinical trials. *British Medical Journal*, 331 (7511):267-70.

Caan B, Ballard-Barbash R, Slaterry M L, (2004) Low energy reporting may increase in intervention participants enrolled in dietary intervention trials. *Journal of the American Dietetic Association*, 104(3):357-66.

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Center for Nutrition Policy and Promotion. (2006). Healthy Eating Index - 2005.
<http://www.cnpp.usda.gov/Publications/HEI/healthyeatingindex2005factsheet.pdf>

Centers for Disease Control. (2003). Behavioral Risk Factor Surveillance System: Centers for Disease Control.
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Chambers, E. t., Godwin, S. L., & Vecchio, F. A. (2000). Cognitive Strategies for Reporting Portion Sizes Using Dietary Recall Procedures. *Journal of the American Dietetic Association*, 100(8), 891-897.

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adolescents by bioelectrical impedance analysis: A systematic review. *Journal of Bodywork and Movement Therapies*, 22(1): 134-146.

Conway, J., Ingwersen, L., Vinyard, B., & Moshfegh, A. (2003). Effectiveness of the US Department of Agriculture 5-Step Multiple-Pass Method in Assessing Food Intake in Obese and Nonobese Women. *American Journal of Clinical Nutrition*, 77(5), 1171-1178.

Conway, J. M., Ingwersen, L. A., & Moshfegh, A. J. (2004). Accuracy of Dietary Recall Using the USDA Five-Step Multiple-Pass Method in Men: An Observational Validation Study. *Journal of the American Dietetic Association*, 104(4), 595-603.

Conway, R., Robertson, C., Dennis, B., Stamler, J., & Elliott, P. (2004). Standardized Coding of Diet Records: Experiences from Intermap UK. *British Journal of Nutrition*, 91(5), 765-771.

Cook, A., & Friday, J. (2004). Pyramid Servings Database for USDA Survey Food Codes Version 2.0. Beltsville MD: USDA, ARS, Community Nutrition Research Group.

Dodd, K. W., Guenther, P. M., Freedman, L. S., Subar, A. F., Kipnis, V., Midthune, D., et al. (2006). Statistical Methods for Estimating Usual Intake of Nutrients and Foods: A Review of the Theory. *Journal of the American Dietetic Association*, 106(10), 1640-1650.

Freudenheim, J. (1999). Study Design and Hypothesis Testing: Issues in the Evaluation of Evidence from Research in Nutritional Epidemiology. *American Journal of Clinical Nutrition*, 69(suppl), 1315-1321.

González, V., McMillan, S., Pedro, E., Tirado-Gomez, M., Saligan, L. (2018). The Health Related Quality of Life of Puerto Ricans during Cancer Treatments; A Pilot Study. *Puerto Rico Health Sciences Journal*, 37(1):46-51.

Guenther, P. M., Reedy, J., Krebs-Smith, S. M., Reeve, B. B., & Basiotis, P. P. (2007). Development and Evaluation of the Healthy Eating Index-2005: Technical Report.

Institute of Medicine of the National Academies. (2006). Dietary Reference Intakes; the Essential Guide to Nutrient Requirements. Washington, D.C.: National Academy Press.

Johnson, R. K. (2002). Dietary Intake--How Do We Measure What People Are Really Eating? *Obesity Research*, 10 Suppl 1, 63S-68S.

Keppel, K. G. (2004). Measuring Progress in Healthy People 2010. [Hyattsville, MD]: U.S. Department of Health and Human Services, Centers for Disease Control and Prevention, National Center for Health Statistics.

Michels, K. B., Welch, A. A., Luben, R., Bingham, S. A., & Day, N. E. (2005). Measurement of Fruit and Vegetable Consumption with Diet Questionnaires and Implications for Analyses and Interpretation. *American Journal of Epidemiology*, 161(10), 987-994.

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Measurements of Usual Food and Nutrient Intakes. *The Journal of Nutrition*, 133(1), 232-235.

Schatzkin, A., & Kipnis, V. (2004). Could Exposure Assessment Problems Give Us Wrong Answers to Nutrition and Cancer Questions? *Journal of the National Cancer Institute*, 96(21), 1564-1565.

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Torres, L. (2002). Estrategias de Intervención para Inclusión. <http://www.pratp.upr.edu/leyes.htm>

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Decanato de Estudios Graduados e Investigación, Recinto de Río Piedras, Universidad de Puerto Rico. Comité asesor para la protección de los seres humanos como sujetos en la investigación (CAPSHI). <http://graduados.uprrp.edu/capshi>

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